General

Guideline Title

Prevention of falls (acute care). Health care protocol.

Bibliographic Source(s)

Degelau J, Belz M, Bungum L, Flavin PL, Harper C, Leys K, Lundquist L, Webb B, Institute for Clinical Systems Improvement (ICSI). Prevention of falls (acute care). Health care protocol. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2012 Apr. 43 p. [54 references]

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Prevention of falls (acute care). Health care protocol. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2010 Apr. 34 p. [48 references]

Recommendations

Major Recommendations

Note from the National Guideline Clearinghouse (NGC) and the Institute for Clinical Systems Improvement (ICSI): For a description of what has changed since the previous version of this protocol, refer to Summary of Changes Report – April 2012 .

The recommendations for risk assessment and prevention of falls in hospitalized patients are presented in the form of an Annotation Table and protocol accompanied by 7 detailed annotations. Clinical highlights and the annotations follow.

Class of evidence (A-D, M, R, X) ratings are defined at the end of the "Major Recommendations" field.

Clinical Highlights

- Best practice results have only been achieved when there is significant organizational support for falls reduction across departments and disciplines. *(Annotation #1; Aims #1, 2)*
- Transparency of falls rates by sharing between hospital units, hospitals and hospital systems or public reporting has a positive effect on falls and injury reduction. *(Annotation #7; Aim #1)*
- Accountability through auditing of compliance with falls risk assessments and interventions has a positive effect on reducing falls rates and injury (consensus of panel members). *(Annotation #7; Aim #1)*
- Best practice in fall reduction includes:
    - Falls risk assessment

- Visual identification of individuals at high risk for falls
- Fall risk factor directed interventions
- Standardized multifactorial education including visual tools for staff, families, and patients *(Annotations #1, 4, 5; Aims #1, 2)*
- Teach back – a method of patient education that includes scripting such as "just to make sure I did a good job in teaching you how to prevent a fall while you are here, can you tell me the most important thing you can do to prevent a fall?"

- There should be interdisciplinary collaboration on falls prevention at the time of admission between admitting clinicians having first contact with the patient, including admitting physicians, pharmacists and nurses. *(Annotations #2, 4; Aim #2)*
- Incorporate team-based success factors associated with the best reported reductions in falls and injury rates including:
  - Ensuring falls risk assessments, investigation of falls incidents, confronting problem issues, and accountability for missed opportunities
  - Interdisciplinary discussion of patient falls risk during daily rounding
  - Medication review for all patients at risk for injury and/or risk for falls
  - Nurse rounds to include reinforcement of education patients/families role in falls risk prevention (use of call light, assist with ambulation to bathroom, etc.)
  - Implementation of interdisciplinary post-fall huddle to discuss action plan after patient fall event
- Fall risk assessment (regardless of age) should include:
  - A determination through the use of an assessment tool that the patient has fallen in the past year
  - A functional assessment test – visual observation of the patient's mobility for those not confined to bed rest
  - An injury risk assessment
- Acute care settings should implement a visual identification system for patients at risk of falling. *(Annotation #4; Aim #2)*
- Communication of falls risk across departments and disciplines (including to attending physicians) should be reliable. *(Annotation #4; Aim #2)*
- Multifactorial interventions that increase observation and surveillance have been found to be effective on falls. *(Annotation #5, 6; Aim #2)*

Annotations for Prevention of Falls (Acute Care)

1. Obtain Organizational Support for a Falls Prevention Program
   It is clear that in order to maximize the effectiveness of patient safety programs like falls prevention strategies, involving multiple levels of management and taking accountability as a team are encouraged. The organization should not only implement standard interventions for fall prevention but also foster a culture to promote accountability, safety awareness and teamwork of the interdisciplinary team. This approach has been attributed to falls reduction rates *[C]*.

   It is clear that application of a falls risk tool or prevention protocol by itself will have little impact on rates of falls and falls with injury. Organizational support for making falls injury prevention a highly prioritized, well-publicized organizational aim that touches all disciplines and departments is necessary for achieving best results. This includes involving and enlisting the support of medical staff of health care organizations to a much greater degree than has been done in the past. This support has been linked to falls reduction rates *[D]*, *[R]*.

   Best-practice results have been achieved only when there is significant organizational support for falls reduction across departments and disciplines.

   - The organization has an interdisciplinary team in place to oversee the strategic plan for the falls prevention program.
     - The falls prevention program plan is reviewed by the team and updated periodically throughout the year.
     - The organization utilizes a "Unit-Based Champion" approach to falls prevention (or a hospital-wide champion approach for smaller facilities).
     - The organization has falls prevention program policies and procedures that are designed for differential interventions based on specific populations and units.
   - The organization supports recommendations from the falls prevention team on equipment and environmental safety.
     - The organization has monthly falls reviews by unit leadership and staff.
     - The organization has a post-falls assessment process to identify trends and opportunities to improve safety.

   Education of Falls Reduction Policies and Procedures

   All clinical and non-clinical staff should understand the hospital's policies and procedures in place for the prevention of falls. Education measures should include:

   - All staff are educated on falls prevention indicators and post-falls protocols for specific organization.
   - Education is ongoing and includes brief understanding of the assessment tool and the implications and strategies for falls prevention.
   - All staff should be aware of environmental indicators that can be a potential hazard to patient safety/falls.

2. Establish a Process for Evaluation of the Hospitalized Patient on Admission for Risk of Falling
   The question for all hospital staff assessing a patient is "Will this patient fall?" Staff members include physicians, nurses, nursing assistants, transport aides, and support staff. In answering this question, current available literature suggests falls risk prediction can be condensed to three elemental questions:

   1. Has the patient fallen in the last year?
   2. Does the patient look like he/she is going to fall? In other words, does the patient have a clinically detectable abnormality of gait or balance?
   3. Does the patient have an additional risk factor for an injurious fall?

   The systematic review *[M]* of falls prediction in community dwelling elderly found that the most consistent predictors of future falls were a history of falls in the last 12 months (likelihood ratio range 2.3-2.8) and clinically detected balance and gait abnormalities (likelihood ratio range 1.7-2.4). It is important to note that visual impairment, medication variables, and impaired cognition or activities of daily living deficits did not consistently predict falls across studies of community dwelling elderly.

   These domains are often included in assessments of falls risk upon patient admission to acute care hospitals. Nursing assessment instruments have been developed in the last 10-15 years to address Question #2 in a more standardized manner to better predict falls risk on admission and to direct falls prevention resources to those patients. Typically, these assessments are done by nursing staff. The addition of a physician assessment as part of an admission order set had additional value in identifying patients at risk and reducing falls rates on a neurology unit at the Mayo Clinic *[C]*. The admitting physician simply selected "patient is" or "patient is not at high risk of falls by physician assessment" on the electronic admission order set. Falls in the seven quarters after implementation were significantly lower than the nine quarters preceding implementation as compared to non-intervention units.

   There is no disagreement that some type of falls risk assessment should occur at patient admission to the acute care hospital. Falls risk assessment in the emergency department has also been mentioned as a part of a multifactorial falls prevention protocol *[D]* and adopted by some of ICSI's member hospitals.

   Standardized Assessment Tool

   A number of falls risk assessment instruments (the Hendrich I and II, Johns Hopkins, Innes, Morse, STRATIFY, Downton, Tinetti and Schmidt) have been developed and validated. To date, there has been no consensus as to whether any of these assessment instruments is better than others in falls prediction. In fact, even the best of these tools in terms of sensitivity and specificity underpredicted and overpredicted falls in acute care settings *[R]*. Falls risk assessment instruments by themselves do not prevent falls, but only predict them. In addition, many of these tools may take four to seven minutes per patient to complete, straining nursing resources *[C]*.

   If a risk factor score is used, a further assessment that identifies and treats the modifiable (also termed personal) risk factor is required. A developer of the STRATIFY tool concluded in a recent systematic review that the focus of falls risk assessment should shift directly to identifying and treating those modifiable risk factors. This review included many commonly used scales, such as STRATIFY and Morse. It did not include the Hendrich I scale, as the data were insufficient to calculate odds ratios and confidence intervals *[M]*.

   The more recently developed and commonly used Hendrich II falls risk model was not included in the above review. This model includes an easily performed assessment of mobility, names modifiable risk factors, and directly links to interventions or a set of strict falls risk precautions. A score of 5 or greater is classified as high falls risk. Widespread use and incorporation of the Hendrich II into the electronic medical record has been linked to achievement of falls rates in the "better performer" category of 2.5-3.5 falls/1,000 patient days *[C]*, *[D]*.

   Since the 2008 revision, the work group has become aware of successful falls reduction programs employing the Hopkins or Morse falls assessments. These are non-proprietary; however, the successful falls reduction programs appear to couple these assessments with a mobility test such as Get Up and Go or additional injury assessment (ABC's).

   See the original guideline document for a comparison of the Hendrich, Morse, and Johns Hopkins Tools.

   Regardless of the falls assessment tool selected, internal validation of the instrument within the hospital should occur on a periodic basis *[R]*. It is suggested that this assessment include completing a 2x2 table of falls prediction. From this table, sensitivity and specificity at the facility can be calculated on a periodic basis to determine if the risk assessment tool is performing with adequate sensitivity. In general, a facility's trustee of falls prevention efforts would want to minimize the number of false negatives in screening for falls risk. This would optimize the negative predictive value of negative screens and optimize sensitivity. In addition, other factors such as cost, training, and nursing time to administer the screen should be considered.

Risk Category	Fall N (%)	Did Not Fall N (%)
Assessed as high fall risk		
Not assessed as high fall risk		

The alternative to using a fall risk assessment instrument is a simple screening protocol of determining if a patient has fallen in the last year, and performing a mobility assessment, either a Get Up and Go test or a timed Get Up and Go test in addition to the clinical judgment of the person assessing the patient *[C]*. However, the work group is aware of no published reports of better performance in falls and falls injury rates without using a falls risk assessment instrument.

The Get Up and Go Test and the Timed Get Up and Go Test are available at http://www.fpnotebook.com/Geri/Exam/GtUpAndGTst.htm .

If either of these screening measures suggests increased falls risk, the assessor should determine the modifiable risk factors and identify fall prevention interventions triggered by the presence of that risk factor.

On the basis of the current literature, this work group concluded that:

- Falls risk scores are not an essential part of falls prevention policies.
- The falls risk score may under- or overpredict patient falls.
- Any falls risk score should be tested at the facility for specificity and sensitivity.
- Of the currently available falls risk scores, the Hendrich II has been associated with better performance benchmarks in falls prevention in a major multihospital health care system. Non-proprietary assessments such as the Morse scale or Hopkins scale should be coupled with a mobility test such as a Get Up and Go test, or nursing observation and judgment on the patient's mobility.
- A second stage of assessment for injury risk modifiable (personal) risk factors leading to risk factor specific interventions should be done. These factors include age, bone, coagulations and surgery (ABCs).

Injury Risk Assessment

- There has been increased focus on assessing each patient's risk for injury, as well as his/her risk for falling.
- There are certain populations that, if they fell, would be at much greater risk for serious injury.
- The common categories that have been used recently are age (often 85 years old and older), bone (osteoporosis, conditions that are risk factors for osteoporosis, metastases to the bone, etc.), and coagulation (on anticoagulation therapy or bleeding disorder). Another category could include major surgery (surgical wound that could dehisce with a fall). These have been referred to as the ABCs *[D]*, *[M]*. Additional information is available at http://www.ncbi.nlm.nih.gov/books/NBK2653/ .

3. Perform Risk Assessments to Identify Risk Factors
Cognitive Dysfunction as a Risk Factor

Delirium

Delirium has many synonyms, including acute confusional state, altered mental status, reversible dementia, and organic brain syndrome.

All patients over the age of 65 years on admission, regardless of admitting diagnosis, should be assessed for both dementia and delirium. Geriatric patients with acute illnesses are known to be at a higher risk of falling. This group's review of the literature has identified multiple systematic reviews and original articles demonstrating that patients with delirium or confusion are at higher risk of falls.

Recognition of delirium is particularly important as a modifiable risk factor for falls, and an interdisciplinary approach is needed to screen patients. The work group advocates the use of the four-item Confusional Assessment Method (CAM) *[C]*, as it has a sensitivity of 94%-100%, a specificity of 90%-95% and a high inter-observer reliability. This tool is easy to administer and use, and requires very little training. See the Implementation Tools and Resources Table in the original guideline document for CAM.

Dementia

Patients with dementia include those with a diagnosis of Alzheimer's disease, vascular dementia, Lewy-Body dementia, fronto-temporal lobe dementia, and those associated with other disorders. Such patients normally have slower reaction times and demonstrate impaired judgment. In addition, these patients often have impaired mobility, are admitted from nursing homes, have poor baseline functional status, impaired strength, and are at higher risk for significant polypharmacy, all of which are known to place patients at higher risks for falls.

Cognitive impairment has been well established as a risk factor for falls. In one study *[B]* the relative risk of falling for patients with a Mini-Mental Status Exam (MMSE) of less than 20 was 2.6 (95% confidence interval [CI]:1.7:4.0). Patients with preexisting cognitive dysfunction often have impaired executive functioning and lose insight, particularly with the inability to differentiate between a safe and unsafe environment.

In the inpatient setting, the work group recommends two approaches in screening patients for cognitive impairment. The first is the Mini-Cog, a clinical tool advocated by the Society of Hospital Medicine as a screening instrument for dementia. It involves three items plus a clock-drawing test, can be administered in three minutes, and is highly reproducible and reliable *[C]*. Two other methods of screening include the Folstein Mini-Mental Status Examination and the Kokmen Short Test of Mental Status. Both can take up to 10 minutes to administer and have been well validated in previous studies in screening for dementia. The MMSE is well accepted and commonly used. However, a significant disadvantage is that it is copyrighted and would require a license for use in institutions. Patients with a MMSE score of less than 24/30 are at higher risk for falls. The Kokmen is public domain and has been shown to be just as effective as the MMSE and can be used free of charge. An alternative screening method includes the Short Portable Mental Status Questionnaire *[C]*. This 10-item questionnaire is easy to administer and patients with five or greater incorrect items have been demonstrated to be at a higher risk of falls *[B]*.

See the Implementation Tools and Resources Table in the original guideline document for Mini-Cog, MMSE, and Kokmen Short Test of Mental Status

Impaired Mobility

Impaired mobility has been identified as being a risk factor for falling. This includes impaired gait, weakness, decreased lower extremity mobility, and decreased coordination and balance. The literature also suggests that patients who fell were more likely to have been using an assistive device *[M]*.

Physical assessment of the patient's mobility is an important factor in the identification of patients at risk for falling. The literature contains several different tools to use but does not adequately define the "best" tool. Examples of tools include the Timed Get Up and Go Test, the Tinetti, and the Berg.

The Get Up and Go test takes about five minutes and has patients perform six tasks. It is scored on a five-point scale with 1 being normal and 5 being severely abnormal. The Tinetti Assessment tool takes 10 to 15 minutes. It has been shown to have good inter-rater reliability. Patients who score 19 or below are at high risk for falls. Patients who score between 19 and 24 are at risk for falls. The Berg Balance Measure tool takes 15 to 20 minutes. The patient performs 14 tasks to challenge his/her balance. The higher the score, the more independent the patient is *[C]*.

Medications

According to the latest Minnesota Adverse Health Events public report *[D]*, over half of all patients with a serious fall event were taking one or more types of medications known to increase falls risk within 24 hours of their fall. Several drugs are associated with increased risk for falls in patients of all ages. Agents that have been associated with falls are anticonvulsants, antidepressants, antipsychotics, benzodiazepines, Class 1A antiarrhythmic, digoxin, opiates and sedative hypnotics.

A subset of patients at risk include the elderly population, who are more prone to adverse effects of medications due to changes in metabolism and slowed clearance from renal and hepatic impairment. In addition, drug interactions leading to adverse effects by additive or synergistic effects may be more prevalent in elderly people as they are often on multiple medications *[D]*. Patients on four or more drugs are at greater risk of falls.

Particular drugs may be an independent risk factor in itself causing falls in elderly, but other parameters relating to drug use can increase risk even further. For example, with benzodiazepines the risk increases in the first two weeks and higher doses have higher risk (greater than 8 mg diazepam or equivalent) *[M]*, *[R]*. Benzodiazepines have been recognized as independent risk factors for falls among elderly people. Benzodiazepines with a shorter half-life were positively associated with falls during hospital stay. The risk increases if other psychotropic drugs or diabetic medications are being used, if the patient has cognitive impairment, if comorbidities are present, if greater than 80 years of age, or if they were in hospital longer than 17 days. Long-acting benzodiazepines increase falls and the risk of hip fracture *[C]*, *[D]*.

There is an associated risk of falls when patients used zolpidem, meprobamate or calcium channel antagonists. When an alternate medication can be selected, this is advised. It has been demonstrated that use of poly-pharmacy may represent an exposure to medications that increase the probability of falls. Falls risk increases from 25% with one medication to 60% with six or more concurrent medications *[C]*.

Psychotropic medications have about a twofold increased risk of falls and fractures. Similarly there is strong evidence for antidepressants

increasing falls risk – particularly the tricyclics. Antidepressants and antipsychotics can cause drowsiness, gait imbalance, lack of coordination or slow reaction, confusion, orthostatic hypotension and involuntary muscle contractions, all of which can lead to a fall *[C]*, *[M]*.

When given to hospitalized patients, zolpidem has been shown to be associated with adverse central nervous system (CNS) reactions such as confusion, daytime somnolence, and dizziness *[C]*.

Refer to the original guideline document for more information on increased risk of falls associated with psychotropic medication, antidepressants, diuretics, and others.

Considerations for Improvement in Assessing Falls Risk and Medication Management

1. Sleep Hygiene Program
    a. Interview and assess patient's need for sleep aid. Assess patient's past methods of falling asleep and past use of medications and/or non-pharmacological methods to induce sleep.
    b. Assess the physicians', nurses', pharmacists' and other team members' knowledge on use of sedatives for patients.
    c. Review standardized order sets for individualized need of any sedative/hypnotic ordered for patient. Consider removal of sedative/hypnotic on order set.
    d. Consider non-pharmacological versus pharmacological interventions to aid in enhancing sleep.
2. Medication Assessment and Adjustments
    a. Complete falls medication assessment review by physician, nurse, pharmacist and others
    b. Identification of medications that will place patient at risk for injury by the health care team
    c. Unnecessary medications discontinued
    d. Medications with overlapping side effects that promote confusion and sedation will be reevaluated and altered appropriately.
    e. Minimizing the use of zolpidem will be discussed by the health care team.

Further information is located in the 'Implementation Tools and Resources Table' section of the original guideline document.

Environmental

Physical hazards are often involved in patient falls. An environmental assessment or checklist can often identify modifiable risk factors to falls, such as floor mats, lack of handrails in bathrooms, poorly anchored rugs or clutter *[R]*.

See the 'Implementation Tools and Resources Table' section in the original guideline document for an example of environmental checklist.

4. Communicate Risk Factors
Visual Communication

Identify those at risk by placing visual identifiers such as signs on room and bathroom, wristbands, buttons, stickers, posters, chart identifiers, door/name identifiers, etc.

Members of the health care team, in all departments, should be educated in recognizing these cues. Also all family and visitors should be educated in recognizing and understanding the identifiers and be aware of how to obtain help from appropriate staff.

Patient-specific falls risk status must be identified clearly to alert all staff handling the patient and anyone entering the room. Icons can be very helpful for health care clinicians to identify what a patient's risks may be, but they need to be communicated by all staff and agreed upon to be effective. Optimizing use of visual cues (i.e., assist of two for transfers, needs assistive device, history of falls) by members of the health care teams to clearly alert all staff of a patient's specific falls risk is important for follow-through and to facilitate immediate recognition/interpretation. When utilizing visual cues, it is important to consider sign fatigue *[C]*.

Refer to the original guideline document for examples of visual identifiers/cues.

Communication to Patients and Families

- Notify patient and family of fall risk upon admission, as risk changes, and upon discharge.
- Describe the organization's fall prevention program and educate the patient and family in recognizing and understanding visual identifiers.
- Clarify reasonable expectations of the organization.
- Discuss how the patient and family members can assist with fall prevention and when/how to contact staff when necessary.
- Document evidence of patient education regarding falls risk, and the patient and family members understanding of the risk and

prevention measures.
[B]

Patient Education

- Evidence shows that the best falls prevention programs are multifactorial, education being one of those pieces *[D]*.
- Clinical practice guidelines from the United States and Canada both recommend patient education as a part of falls prevention *[D]*. A successful method of education is the "teach back" process, which is a method of patient education that includes scripting such as "Just to make sure I did a good job in teaching you how to prevent a fall while you are here, can you tell me the most important thing you can do to prevent a fall?"
- A multimedia or complete patient education program has significantly reduced falls in people with no cognitive impairment. This includes written education regarding falls data and causes of falls, self-assessment of risk, problem area identification, development of preventive strategies and behaviors, goal setting and review along with video/DVD material highlighting these same points and then followed with a trained professional working with the patient *[A]*.

Communication to Members of the Health Care Team Who Come in Contact with Patient

The goals of communication are seamless transition of patient information from one unit to another, one caregiver to another and one department to another. Organizations must implement a standardized approach to hand off communications consistent with the Joint Commission's National Patient Safety Goals. In a hospital, such interactions may occur upon arrival to or from the following patient care areas:

- Radiology
- Procedure rooms
- Surgery
- Rehabilitation therapy (includes physical therapy, occupational therapy, speech and language pathology therapy)

Visual identifier clues (ruby slippers, falling stars, wristbands, etc.) should be active and prominent so every department that is dealing with the patient should be able to relate to the high risk status of the patient. Members of the health care team, in all departments, should be educated in recognizing these cues.

A transport procedure checklist documents the information for transfer of the patient and responsibility for care from one department and caregiver to another. Similarly, some facilities use a patient passport which is a comprehensive checklist that must be completed and signed before a patient can leave the care unit. Such a checklist should include the falls risk status and recommendations such as "Do not leave the patient unattended."

It is critical that all patients at high risk for falls are identified to everyone when the patients are being transported to other disciplines, and evident to those transferring. It is imperative that someone is assigned the leadership role to enforce accountability of staff and follows through to the next person in contact with the patient *[C]*. An interdisciplinary safety team may promote a safety culture to empower staff to participate. Leadership needs to be engaged with staff to promote a safe patient handling culture *[D]*.

If a patient receives medications, such as midazolam and lorazepam for procedures or radiology tests, communicate this to nursing staff on the patient's unit. A handoff communication protocol such as SBAR (Situation, Background, Assessment, Recommendation) is recommended. The patient should then be monitored closely for the next 24 hours as the risk for falling increases with these medications.

5. Perform Risk Factor Interventions
   Universal Falls Interventions

   These interventions should be present for all patients regardless of risk of falling:

   - Familiarize the patient to the environment.
   - Have the patient "teach back" all light use.
   - Keep the call light within reach at all times.
   - Keep patient's personal possessions within reach.
   - Have sturdy handrails in patient bathrooms, room and hallway.
   - Keep hospital bed in low position with brakes locked.
   - Provide non-slip, well-fitting footwear for the patient.
   - Utilize night light or supplemental lighting.
   - Keep floor surfaces clean and dry. Clean up all spills promptly.
   - Keep patient care areas uncluttered.

A falls prevention electronic toolkit has been successful in acute care hospitals as a way to assess for falls risk, provide bedside alerts to all stakeholders, educate on fall interventions and prevention, and document falls prevention in the plan of care *[A]*. This software with its multifaceted capabilities has proven to reduce falls.

Other falls precautions that should be incorporated with the toolkit would be the following:

- A staff member must remain with the patient when assisted to the bathroom.
- Perform intentional Rounding Behaviors at least hourly.
- Transfer belts should be available at the bedside.
- Assess need for home safety evaluations, including physical and occupational therapy consultation as part of discharge planning needs.
- Assess the need for 1:1 monitoring and arrange as needed.
- Use chair or bed alarm.

Behavioral interventions can be used in patients with dementia in order to prevent falls. There is limited success with pharmacotherapy. These interventions can be implemented by the interdisciplinary team and should be communicated to the patient's primary care clinician in order to prevent falls in the outpatient setting. Maintain consistency in procedures, routines and schedules, and staff allocation. Identify possible triggers for agitated, impulsive behavior, such as a particular medication, time of day, infection or loud noise, and minimize them when possible.

Refer the patient to occupational and physical therapists to assist with behavioral management, to develop a plan to maximize orientation, awareness and function, and to determine whether gait aids are needed and used appropriately and correctly.

Impaired mobility interventions should be interdisciplinary in nature. The following interventions have been employed by hospital systems to reduce falls rates. However, the literature is contradictory in determining which intervention is most effective. Hospitals generally use multiple interventions to produce their improvement in falls rates *[R]*.

Exercise reduces the rate of falling in older people. Decreased muscle strength, impaired mobility and gait are some common risk factors that help predict falls. These risk factors can be modified by an exercise program prescribed by a physical therapist *[M]*.

Interventions:

- Patients should wear their shoes or non-skid footwear (some have used red slippers for easy identification by staff)
- Physical therapy and occupational therapy consults for evaluation and possible treatment
- Instruct the patient to rise slowly
- Early and regular ambulation of high-risk patients
- Repeated education of safety measures to the patient and family members
- Assist high-risk patients with transfers
- Use of patient's regular assistive device such as a walker or cane, or equipment recommended by physical therapy or occupational therapy
- Regularly scheduled assistance with toileting
- Provide supportive chairs with armrests
- Apply hip protectors to patients at high risk for hip fracture
- Adequate day time and night time lighting for ambulation and activities of daily living
- Use of elevated toilet seats
- Use of a gait belt or transfer belt during mobility activities

[M], *[R]*

Environmental Interventions

Facility management, nursing and biotech staff should perform environmental rounds to confirm that hallways and patient areas are well lit, uncluttered and free of spills — also that locked doors are kept locked when unattended, handrails are secure, and tables and chairs are sturdy. Biotech staff should inspect assistive devices regularly. Nursing staff should confirm that patient rooms are set up in a way that minimizes the risk of falling. All staff should make sure that unsafe situations are dealt with immediately.

An example of environmental rounds can be found at http://www.health.vic.gov.au/qualitycouncil/ .

Refer to the original guideline document for information on hip protectors, removal of physical restraints, falls alarm devices, beds, and other environmental factors.

6. Observation and Surveillance
   All patients admitted to acute care need to be monitored and reassessed on a regular basis. Due to the likelihood of ongoing changes, patients should be continuously reassessed even though they may not be in a high-risk falls group. Routine reassessments should occur at shift change, with a change in the patient's clinical status and following a fall.

   The same assessment tool should be used on all reassessments. If risk factors have changed from the previous assessment, interventions need to be revised to address any new risk factors.

   Intentional Rounding

   Intentional timed rounding by nursing staff is best practice utilized in a number of better performing fall prevention protocols. Sometimes known as safety rounding, it is a strategy allowing nurses to monitor for changes in the patient's condition *[C]*. However, recent literature shows that hourly rounding can be expanded to comfort and safety rounding, as well. Studies have shown that 45.2% of all falls were toileting related *[D]*. By implementing hourly rounding and incorporating toileting assistance, hospitals have been able to reduce their falls by 60% in one year *[C]*, *[D]*. Patient satisfaction and safety have been improved with this concept, and hospital personnel experience less job fatigue and "burnout" with the decreased number of call lights experienced throughout the shift. The nursing professional team shares the responsibility of these rounds and finds that shifts are quieter and more organized, allowing nurses time for charting and patient and family education.

   Components of the hourly safety and comfort rounds may include:

   - Assessment of pain level
   - Offering toileting assistance
   - Re-positioning and comfort
   - Patient belongings, call light, telephone, television remote, urinal, etc. within reach
   - Dressing checks
   - Water refreshed and offered
   - Lighting and temperature of room
   - Checking room for environmental and hazardous concerns
   - Asking the final question, "Is there anything else I can do for you?"
   - Making arrangements for time to return

   These measures are often referred to as The Four P's – position, plan assessment, personal needs, and placement *[C]*, *[D]*.

   Successful implementation of an hourly rounding program revolves around hospital leadership supporting the concept, as well as a strong training program and accountability on every level. Recognition of a successful falls prevention program helps to sustain staff's continued commitment to the program. Posters showing success rates in decreasing numbers of patient falls and days without falls in prominent view for staff, patients, and families gives staff a great sense of pride in a job well done. These types of posters bring the topic of falls prevention into daily conversations and help involve the entire interdisciplinary team in the program. Challenging the staff to build on previous success rates with the promise of unit reward or celebration parties build incentive to continue the satisfying work.

   Sitters

   Available evidence suggests that sitters contribute little to falls prevention programs. Two studies from Australia had mixed results. In both studies, sitters' hospitals had no patients falls while volunteer sitters were present. However, the overall falls rate of the facility was not decreased in one study *[C]* but was reduced 44% in another study *[D]*. Furthermore, an attempt to develop a Patient Attendant Assessment Tool (PAAT) at the University of Michigan *[C]* improved the fill/request rates for sitters, but the rate of falls with injuries was higher. None of these studies described the training or education provided to either volunteer or paid sitters.

   Thus, while studies involving sitters suggest a questionable effect on falls rates, studies that involve increased observation and surveillance by nursing appear to have a more consistent positive effect on falls rates.

7. Auditing, Continuous Learning and Improvement
   Safety huddles (post-falls huddles) provide a mechanism to learn from falls, near misses or other unexpected events. These immediate assessments of the situation allow a review of the event with the people involved, including family members, and can be done at the bedside. Points included in safety huddles:

   - What happened?
   - Risk factors

- Injury
- Falls interventions in place at time of fall
- Action plan for future

Corrective actions can be put in place and preventive measures can be instituted for improvement after this exchange *[D]*. These huddles can be documented and audited for learning opportunities to be shared throughout the interdisciplinary health care team.

See Appendix A of the original guideline document for a Fall Risk Audit tool used by a major metropolitan hospital.

Definitions:

Classes of Research Reports

Class	Description
Primary Reports of New Data Collections	
A	Randomized, controlled trial
B	Cohort-study
C	• Non-randomized trial with concurrent or historical controls • Case-control study • Study of sensitivity and specificity of a diagnostic test • Population-based descriptive study
D	• Cross-sectional study • Case series • Case report
Reports that Synthesize or Reflect upon Collections of Primary Reports	
M	• Meta-analysis • Systematic review • Decision analysis • Cost-effectiveness analysis
R	• Consensus statement • Consensus report • Narrative review
X	Medical opinion

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Injuries associated with falls

Guideline Category

Prevention

Risk Assessment

Screening

Clinical Specialty

Geriatrics

Internal Medicine

Nursing

Physical Medicine and Rehabilitation

Preventive Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Health Plans

Hospitals

Managed Care Organizations

Nurses

Occupational Therapists

Physical Therapists

Physician Assistants

Physicians

Guideline Objective(s)

- To eliminate all falls with injury through a falls prevention protocol in the acute care setting
- To increase the percentage of patients who receive appropriate falls risk assessment and falls prevention interventions

Target Population

Adult hospitalized patients in the acute care setting

Interventions and Practices Considered

1. Obtaining organizational support for falls prevention program
2. Establishing a process for evaluation of the hospitalized patient for risk of falling

    - Standardized assessment tool
    - Injury risk assessment
3. Performing risk assessments to identify risk factors
    - Cognitive dysfunction (dementia, delirium)
    - Impaired mobility
    - Medications
    - Environmental
4. Communicating risk factors
    - Visual communication, including visual identifiers/cues
    - Communication to patients and families
    - Patient education
    - Communication to members of the health care team who come in contact with the patient
5. Performing risk factor interventions
    - Universal falls interventions, including behavioral interventions and impaired mobility interventions
    - Environmental interventions
6. Observation and surveillance
    - Intentional timed rounding
    - Sitters
7. Auditing, continuous learning and improvement

Major Outcomes Considered

- Sensitivity, specificity, and reliability of screening tools
- Risk factors for falls
- Falls rates

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A literature search of clinical trials, meta-analyses, systematic reviews, or regulatory statements and other professional order sets and protocols was performed. For this protocol, PubMed and Cochrane databases were searched from 6/2009.

The following specific terms were used: Accidental Falls [Mesh], falls (keyword), risk assessment tool (keyword phrase), acute care (keyword), hospitalization OR hospital (keyword), "falls prevention" (keyword), cognitive dysfunction (keyword phrase), dementia (keyword phrase), hazards (keyword phrase), impaired mobility (keyword phrase), hip protectors (keyword phrase), restraints (keyword), alarm (keyword), beds (keyword), rounding (keyword), teach back (keyword phrase), organizational culture OR culture (keywords). All keywords and keyword phrases were used in combination with falls/Accidental Falls.

Inclusion criteria were: clinical trials, meta-analysis, systematic reviews, studies in humans, English language, adults.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Classes of Research Reports

Class	Description
Primary Reports of New Data Collections	
A	Randomized, controlled trial
B	Cohort-study
C	• Non-randomized trial with concurrent or historical controls • Case-control study • Study of sensitivity and specificity of a diagnostic test • Population-based descriptive study
D	• Cross-sectional study • Case series • Case report
Reports that Synthesize or Reflect upon Collections of Primary Reports	
M	• Meta-analysis • Systematic review • Decision analysis • Cost-effectiveness analysis
R	• Consensus statement • Consensus report • Narrative review
X	Medical opinion

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Document Development

A work group consisting of 6 to 12 members that includes physicians, nurses, pharmacists, other healthcare professionals relevant to the topic, and an Institute for Clinical Systems Improvement (ICSI) staff facilitator develops each document. Ordinarily, one of the physicians will be the leader. Most work group members are recruited from ICSI member organizations, but if there is expertise not represented by ICSI members, 1 or 2 members may be recruited from medical groups, hospitals or other organizations that are not members of ICSI.

The work group will meet for 3 to 4 three-hour meetings to develop the protocol. Under the coordination of the ICSI staff facilitator, the work group develops the algorithm and writes the annotations and literature citations. The literature is graded in the document based on the ICSI Evidence Grading System.

Once the final draft copy of the protocol is developed, the document is sent to the ICSI members for review and comment.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Review and Comment

The purpose of the review and comment process is to provide an opportunity for the clinicians in the member organizations to review the science behind the recommendations and focus on the content of the protocol. Review and comment also provides an opportunity for clinicians in each organization to come to consensus on feedback they wish to give the work group and to consider changes needed across systems in their organization to implement the protocol.

All member organizations are encouraged to provide feedback on protocols; however, responding to review and comment is not a criterion for continued membership within the Institute for Clinical Systems Improvement (ICSI).

Document Approval

Each protocol is approved by the appropriate steering committee. There is a steering committee for Respiratory, Cardiovascular, Women's Health, and Preventive Services. The Committee for Evidence-based Practice approves guidelines, order sets, and protocols not associated with a particular category. The steering committees review and approve each protocol based on:

- Member comments have been addressed reasonably.
- There is sufficient reason to expect that members will use the protocol with minor modifications or adaptations.
- Within the knowledge of the reviewer, the recommendations in the protocol are consistent with other protocols, regulatory and safety requirements, or recognized authorities.
- When evidence for a particular step in the protocol has not been established, the work group identifies consensus statements that were developed based on community standard of practice and work group expert opinion.
- Either a review and comment by members has been carried out, or within the knowledge of the reviewer, the changes proposed are sufficiently familiar and sufficiently agreed upon by the users that a new round of review is not needed.

Once the document has been approved, it is posted on the ICSI Web site and released to members for use.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is classified for selected recommendations (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate prevention of falls in acute care

Potential Harms

The falls risk score may underpredict or overpredict patient falls.

Qualifying Statements

Qualifying Statements

- This Institute for Clinical Systems Improvement (ICSI) Health Care Guideline should not be construed as medical advice or medical opinion related to any specific facts or circumstances. Patients and families are urged to consult a health care professional regarding their own situation and any specific medical questions they may have. In addition, they should seek assistance from a health care professional in interpreting this ICSI Health Care Guideline and applying it in their individual case.
- This ICSI Health Care Guideline is designed to assist clinicians by providing an analytical framework for the evaluation and treatment of patients, and is not intended either to replace a clinician's judgment or to establish a protocol for all patients with a particular condition.

Implementation of the Guideline

Description of Implementation Strategy

Once a guideline is approved for general implementation, a medical group can choose to concentrate on the implementation of that guideline. When four or more groups choose the same guideline to implement and they wish to collaborate with others, they may form an action group.

In the action group, each medical group sets specific goals they plan to achieve in improving patient care based on the particular guideline(s). Each medical group shares its experiences and supporting measurement results within the action group. This sharing facilitates a collaborative learning environment. Action group learnings are also documented and shared with interested medical groups within the collaborative.

Currently, action groups may focus on one guideline or a set of guidelines such as hypertension, lipid treatment, and tobacco cessation.

Detailed measurement strategies are presented in the original guideline document to help close the gap between clinical practice and the guideline recommendations. Summaries of the measures are provided in the National Quality Measures Clearinghouse (NQMC).

Implementation Recommendations

Prior to implementation, it is important to consider current organizational infrastructure that address the following:

- System and process design
- Training and education

- Culture and the need to shift values, beliefs and behaviors of the organization.

The following system changes were identified by the protocol work group as key strategies for health care systems to incorporate in support of the implementation of this protocol:

- Organizational leadership needs to identify and support an interdisciplinary falls prevention team comprising clinical and non-clinical staff to oversee the falls prevention program. The team should include at least one clinician with a background or additional education in falls prevention.
- Organizations need a reliable process in place for a comprehensive, interdisciplinary clinical assessment, communication and risk factor intervention plan.
- Falls prevention education should be provided to patients, families, clinical and non-clinical staff.
- Organizational leadership needs to support systems that promote learning, ongoing evaluation and improvement of the falls prevention program, including analysis of falls rates and injuries (fall/1,000 patient days and fall with injury/1,000 patient days). The analysis should report on the internal effectiveness (validity) of falls screening and effectiveness of interventions applied to those screened at risk.
- Organizations need to support team-based success factors associated with the best-reported reductions in fall and injury rates including:
    - Ensuring fall risk assessments, investigation of fall incidents, confronting problem issues, and accountability for missed opportunities.

Implementation Tools

Chart Documentation/Checklists/Forms

Quality Measures

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Related NQMC Measures

Acute care prevention of falls: rate of inpatient falls per 1,000 patient days.

Acute care prevention of falls: rate of inpatient falls with injury per 1,000 patient days.

Acute care prevention of falls: percentage of patients who receive appropriate falls prevention interventions based upon the results of their falls risk assessment.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Safety

Identifying Information and Availability

Bibliographic Source(s)

Degelau J, Belz M, Bungum L, Flavin PL, Harper C, Leys K, Lundquist L, Webb B, Institute for Clinical Systems Improvement (ICSI). Prevention of falls (acute care). Health care protocol. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2012 Apr. 43 p. [54 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2008 Mar (revised 2012 Apr)

Guideline Developer(s)

Institute for Clinical Systems Improvement - Nonprofit Organization

Guideline Developer Comment

Organizations participating in the Institute for Clinical Systems Improvement (ICSI): Affiliated Community Medical Centers; Allina Medical Clinic; Aspen Medical Group; Baldwin Area Medical Center; Brown Clinic; Center for Diagnostic Imaging/Medical Scanning Consultants; CentraCare; Chippewa County – Montevideo Hospital & Clinic; Cuyuna Regional Medical Center; Entira Family Clinics; Essentia Health; Fairview Health Services; Family Practice Medical Center; Gillette Children's Specialty Healthcare; Grand Itasca Clinic and Hospital; Hamm Clinic; HealthEast Care System; HealthPartners Central Minnesota Clinics; HealthPartners Medical Group & Regions Hospital; Hennepin County Medical Center; Howard Young Medical Center; Hudson Physicians; Hutchinson Area Health Care; Hutchinson Medical Center; Integrity Health Network; Lake Region Healthcare Corporation; Lakeview Clinic; Mankato Clinic; MAPS Medical Pain Clinics; Marshfield Clinic; Mayo Clinic; Mercy Hospital and Health Care Center; Midwest Spine Institute; Minnesota Association of Community Health Centers; Minnesota Gastroenterology; Multicare Associates; New Richmond Clinic; North Central Heart Institute; North Clinic; North Memorial Health Care; Northwest Family Physicians; Obstetrics and Gynecology Specialists; Olmsted Medical Center; Park Nicollet Health Services; Planned Parenthood Minnesota, North Dakota, South Dakota; Quello Clinic; Rice Memorial Hospital; Ridgeview Medical Center; River Falls Medical Clinic; Riverwood Healthcare Center; South Lake Pediatrics; Southside Community Health Services; Stillwater Medical Group; University of Minnesota Physicians; Winona Health

ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; e-mail: icsi.info@icsi.org; Web site: http://www.icsi.org.

Source(s) of Funding

The Institute for Clinical Systems Improvement's (ICSI's) work is funded by the annual dues of the member medical groups and five sponsoring health plans in Minnesota and Wisconsin.

Guideline Committee

Committee on Evidence-Based Practice

Composition of Group That Authored the Guideline

Work Group Members: John Degelau, MD (Work Group Leader) (HealthPartners Medical Group and Regions Hospital) (Hospitalist/Geriatrician); Lynn Lundquist, RN (Lake Region Healthcare Corporation) (Nursing); Lisa D. Bungum, RN, BSN, MAN (Mayo

Clinic) (Nursing); Penny Louise Flavin, C-FNP (Olmsted Medical Center) (Nurse Practitioner); Kris Leys, MPT (Ridgeview Medical Center) (Physical Therapist); Mary B. Belz, RN (Riverwood Healthcare Center) (Nursing); Beth Webb, RN, BA (ICSI) (Facilitator); Cindy Harper (ICSI) (Systems Improvement Coordinator)

Financial Disclosures/Conflicts of Interest

Disclosure of Potential Conflicts of Interest

Mary Belz, RN, Work Group Member
Job Title, Department, Affiliated Organization: RN, Hospital Supervisor, Riverwood Health Care Center
National, Regional, Local Committee Affiliations: None noted
Guideline Related Activities: ICSI – Prevention of Falls
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None noted

Lisa Bungum, RN, BSN, MAN, Work Group Member
Job Title, Department, Affiliated Organization: RN, Nurse Manager, Mayo Medical Center – Methodist Hospital
National, Regional, Local Committee Affiliations: None noted
Guideline Related Activities: ICSI Prevention of Falls
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None noted

John Degelau, MD, Work Group Leader
Job Title, Department, Affiliated Organization: MD, Medical Director, Care Transitions, HealthPartners Medical Group and Regions Hospital
National, Regional, Local Committee Affiliations: Not noted
Guideline Related Activities: North Memorial Guideline Work, ICSI – Prevention of Falls
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None noted

Penny Louise Flavin, DNP, RN, CNP, Work Group Member
Job Title, Department, Affiliated Organization: NP, Family Practice, Olmstead Medical Group
National, Regional, Local Committee Affiliations: None noted
Guideline Related Activities: ICSI – Prevention of Falls, ICSI – Diagnosis and Management of Type 2 Diabetes Mellitus in Adults
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None noted

Cindy Harper, Systems Improvement Coordinator, Work Group Member
Job Title, Department, Affiliated Organization: Systems Improvement Coordinator, ICSI
National, Regional, Local Committee Affiliations: N/A
Guideline Related Activities: ICSI Staff
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None

Kris Leys, MPT, Work Group Member
Job Title, Department, Affiliated Organization: MPT, Inpatient Ortho Site Lead, Ridgeview Medical Center
National, Regional, Local Committee Affiliations: None noted
Guideline Related Activities: ICSI – Prevention of Falls
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None

Lynn Lundquist, RN, Work Group Member
Job Title, Department, Affiliated Organization: Med/Surg/ICCU Director – Lake Region Health Care Corporation
National, Regional, Local Committee Affiliations: None noted
Guideline Related Activities: ICSI – Prevention of Falls
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None

Beth Webb, RN, BA, Work Group Facilitator
Job Title, Department, Affiliated Organization: Clinical Systems Improvement Facilitator - ICSI
National, Regional, Local Committee Affiliations: N/A
Guideline Related Activities: ICSI Staff
Research Grants: None noted
Financial/Non-Financial Conflicts of Interest: None

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Institute for Clinical Systems Improvement (ICSI). Prevention of falls (acute care). Health care protocol. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2010 Apr. 34 p. [48 references]

Guideline Availability

Electronic copies: None available.

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425.

Availability of Companion Documents

The following is available:

- Development and revision process for guidelines, order sets, and protocols. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2007 Jun. 5 p. Electronic copies: Available from the Institute for Clinical Systems Improvement (ICSI) Web site .

Print copies: Available from ICSI, 8009 34th Avenue South, Suite 1200, Bloomington, MN 55425; telephone, (952) 814-7060; fax, (952) 858-9675; Web site: www.icsi.org ; e-mail: icsi.info@icsi.org.

In addition, a Falls Risk Audit tool is available in the appendices of the original guideline document.

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on July 28, 2009. This NGC summary was updated by ECRI Institute on October 21, 2010. This NGC summary was updated by ECRI Institute on July 26, 2012.

Copyright Statement

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouseâ„¢ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion-criteria.aspx.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.